

WHAT IS CLAIMED IS:

1 ~~INS~~ 1. A method of identifying the location of premalignant or malignant
2 breast cancer within a breast duct or breast ductal network, said method comprising:
3 providing a targeting molecule coupled to an identifying agent; and
4 delivering the coupled compound through a preselected individual breast
5 duct in an amount sufficient to identify premalignant or malignant cancerous cells.

1 2. A method as in claim 1, wherein delivering comprises cannulation
2 or catheterization of the breast duct.

1 3. A method as in claim 1, wherein the coupled compound is
2 delivered to more than one duct on a breast.

1 4. A method as in claim 1, wherein the cells are identified for the
2 purpose of excising tissue surrounding and including the cells.

1 ~~INS~~ 5. A method of identifying the location of premalignant or malignant
2 breast cancer within a breast duct or breast ductal network, said method comprising:
3 providing a identifying agent; and
4 delivering the identifying agent through a preselected individual breast
5 duct in an amount sufficient to identify premalignant or malignant cancerous cells.

1 6. A method as in claim 5, wherein delivering comprises cannulation
2 or catheterization of the breast duct.

1 7. A method as in claim 5, wherein the identifying agent is delivered
2 to more than one duct on a breast.

1 8. A method as in claim 5, wherein the cells are identified for the
2 purpose of excising tissue surrounding and including the cells.

1 ~~INS~~ 9. A method of determining the lymph node involvement in patients
2 diagnosed with premalignant or malignant breast cancer growths, said method
3 comprising:
4 providing an identifying agent coupled to a targeting agent; and

5 delivering the coupled compound through a preselected individual breast
6 duct in an amount sufficient to detect lymph node involvement.

1 10. A method as in claim 9, wherein detecting lymph node
2 involvement comprises detecting the identifying agent coupled to a targeting agent in a
3 sentinel lymph node.

1 11. A method as in claim 9, wherein delivering comprises cannulation
2 or catheterization of the breast duct.

1 12. A method as in claim 9, wherein the identifying agent coupled to a
2 targeting agent is delivered to more than one duct on a breast.

1 13. A method of determining the lymph node involvement in patients
2 diagnosed with premalignant or malignant breast cancer growths, said method
3 comprising:
4 providing a identifying agent; and
5 delivering the identifying agent through a preselected individual breast
6 duct in an amount sufficient to detect lymph node involvement.

1 14. A method as in claim 13, wherein detecting lymph node
2 involvement comprises detecting the identifying agent in a sentinel lymph node.

1 15. A method as in claim 13, wherein delivering comprises cannulation
2 or catheterization of the breast duct.

1 16. A method as in claim 13, wherein the identifying agent is delivered
2 to more than one duct on a breast.

1 17. A method of treating premalignant or malignant breast cancer, said
2 method comprising:
3 providing a targeting molecule coupled to a therapeutic agent; and
4 delivering the coupled compound through a preselected individual breast
5 duct in an amount sufficient to inhibit proliferation of the cancerous cells.

1 18. A method as in claim 17, wherein delivering comprises cannulation
2 or catheterization of the breast duct.

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1 19. A method as in claim 17, wherein the coupled compound is
2 delivered to more than one duct on a breast.

1 20. A method as in claim 17, wherein the targeting agent comprises an
2 agent selected from the group consisting of a protein, a polypeptide, a peptide, an
3 antibody, an antibody fragment, a ligand, a receptor, a drug, a chemical, a lipid, a
4 liposome, a small molecule, and a nucleic acid.

1 21. A method as in claim 17, wherein the therapeutic agent is selected
2 from the group consisting of a cytotoxic agent, a cytolytic agent, a growth inhibiting
3 agent, an antagonist, an agonist, and a drug or agent containing liposome.

1 22. A method as in claim 17, wherein the therapeutic agent comprises
2 an agent with therapeutic activity against cancerous or precancerous cells that can be
3 coupled to a targeting agent.

1 23. A method of treating a premalignant or malignant breast cancer,
2 said method comprising:
3 providing a targeting molecule itself having therapeutic activity; and
4 delivering the targeting molecule through a preselected individual breast
5 duct in an amount sufficient to inhibit proliferation of the cancerous cells.

1 24. A method as in claim 23, wherein delivering comprises cannulation
2 or catheterization of the breast duct.

1 25. A method as in claim 23, wherein the targeting molecule is
2 delivered to more than one duct on a breast.

1 26. A method as in claim 23, wherein the targeting molecule comprises
2 an agent selected from the group consisting of a protein, a polypeptide, a peptide, an
3 antibody, an antibody fragment, a ligand, a receptor, a drug, a chemical, a lipid, a
4 liposome, a small molecule, and a nucleic acid.

1 27. A method as in claim 23, wherein the therapeutic activity is
2 selected from the group consisting of a cytotoxicity, a cytolytic activity, growth
3 inhibition, antagonism, an agonism, and immunotoxicity.

1 28. A method as in claim 23, wherein the therapeutic activity is
2 effective against cancerous or precancerous cells.

1 29. A method as in claim 17 or 23, wherein the premalignant or
2 malignant breast cancer comprises cells having a stage selected from the group consisting
3 of hyperplasia, atypical hyperplasia, low-grade ductal carcinoma *in situ*, high-grade
4 ductal carcinoma *in situ*, and invasive carcinoma.

1 30. A kit for localizing or treating lesions in a breast duct, said kits
2 comprising:
3 at least one catheter configured to access a ductal network in a human
4 breast; and
5 instructions for use setting forth a method according to any of claims 1
6 to 28.

1 31. A kit as in claim 30, further comprising at least one container
2 holding a reagent which is used in the method being performed with the kit.

1 32. A kit as in claim 30, further comprising a package holding the
2 catheter and the instructions for use.